

FUJI FILM

67

CALENDAR

1

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

2

	1	2	3	4		
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

3

	1	2	3	4		
5	6	7	8	9	10	11
12	13	14	15	16	17	18
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26	27	28	29	30	31	

4

S	M	T	W	T	F	S
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2	3	4	5	6	7	8
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23	24	25	26	27	28	29
30						

5

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

6

		1	2	3		
4	5	6	7	8	9	10
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18	19	20	21	22	23	24
25	26	27	28	29	30	

1 9 6 1

7

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

8

	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

9

					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

10

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

11

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

12

						1	2
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	
31							

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FUJI FILM PRODUCTS

Sensitized Materials

Optical Goods

Optical Raw Glasses

Photo Chemicals

Papers

Other Products

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I. FUJI FILM PRODUCTS

FILM

General Use

Neopan F ASA 32 Sch. 27

Size : J120, J127, J620, J135

Neopan S ASA 50 Sch. 29

Size : J120, J127, J620

Neopan SS ASA 100 Sch. 32

Size : J120, J127, J620, J135

Neopan SSS ASA 200 Sch. 35

Size : J120, J127, J620, J135

Neopan Reversal 16 mm ASA 40 Sch. 28
50 ft. 100 ft.

Neopan Reversal 8 mm ASA 40 Sch. 28
25 ft. 100 ft.

Neopan SS Sheet Film ASA 100 Sch. 32

Neopan SSS Sheet Film ASA 200 Sch. 35

Size : $2\frac{1}{2}'' \times 3\frac{1}{2}''$, $3\frac{1}{4}'' \times 4\frac{1}{4}''$, $4'' \times 5''$, $4\frac{3}{4}'' \times 6\frac{1}{2}''$, $6\frac{1}{2}'' \times 8\frac{1}{2}''$, $8'' \times 10''$, $10'' \times 12''$

Color

Fujicolor Reversal Film (Daylight Type) ASA 10
Sch. 22

Size : J120, J127, J135

Fujicolor Cine 16 mm 50 ft. 100 ft.

Fujicolor Cine 8 mm 25 ft.

Fujicolor Negative Film ASA 32 Sch. 27

Size : J120, J135

X-ray

Fuji Medical X-ray Film (Screen Type, Non-Screen Type)

Size: $4\frac{3}{4}" \times 6\frac{1}{2}"$, $6\frac{1}{2}" \times 8\frac{1}{2}"$, $8" \times 10"$,
 $10" \times 12"$, $11" \times 14"$, $14" \times 17"$

Fuji Medical X-ray Film (for Fluorography)

35 mm, F120, F520, 6 cm $\times$ 720 cm

Fuji Dental X-ray Film

30 mm $\times$ 40 mm

Fuji Industrial X-ray Film

Type: ± 80 , ± 200 , ± 400

Fuji X-ray Duplicating Negative Film

Fuji X-ray Duplicating Positive Film

Special Purpose Use

Fuji Micro Film (Negative) (35 mm, 16 mm)

35 mm (with perforation) Dark Room Loading 160 cm

(Non-perforation) " 100 ft.

(") " 1,000 ft.

(") Daylight loading 100 ft.

16 mm Dark Room loading 100 ft.

" 200 ft.

" 1,000 ft.

Fuji Micro Film (Positive)

Fuji Photo-Telegraphic Film

Fuji Oscillographic Film

Fuji Gravure Film

Fujilith Film

Fuji Aerographic Film

Fuji Coronagraphic Film

Fuji Klydonographic Film

Fuji Master Film

Fuji Panchro Film Type-F for Graphic Arts

35 mm Motion Picture

Fuji Super Panchromatic Negative Safety Film

1,000 ft. (Daylight loading)

400 ft. (Emulsion side out winding)

Fuji Fine Grain Positive Safety Film 1,000 ft.

Fuji Sound Recording Film 1,000 ft.

Fuji Fine Grain Sound Recording Film (Variable Area Type) 1,000 ft.

Fuji Fine Grain Panchromatic Duplicating Negative Safety Film 1,000 ft.

Fuji Fine Grain Duplicating Positive Safety Film 1,000 ft.

Fujicolor Negative Safety Film (Tungsten)

1,000 ft.

Fujicolor Positive Safety Film 1,000 ft.

16 mm Motion Picture

Fuji Panchromatic Negative RP Safety Film

One-side perforation, both-side perforation

100 ft., 200 ft. (Daylight loading) 400ft.,

1,200 ft. (Dark room loading)

Fuji Fine Grain Positive Safety Film

One-side perforation 1,200 ft.

Fuji Low Contrast Positive Safety Film

One-side perforation 1,200 ft.

DRY PLATE

Neopan Plate ASA 40 Sch. 23

A-1 Plate ASA 20 Sch. 25

Fuji Process Plate (Ortho) ASA 1 (Tungsten)
Fuji Process Plate (Panchro) ASA 12 (Tungsten)
Fuji Spectrographic Plate
Fuji Infrared Plate 750, 820
Fuji Autoradiographic Plate
Fuji Electron Microscopic Plate
Fuji Aerographic Plate
Fuji Color Separation Plate
Fuji Nuclear Plate

PAPER

General Use

Gaslight Paper

Ginrei (for Portrait)

AM, B, RM, 5 1~3

To-Ne (for General Use)

F 1~5

Chlorobromide Paper

Bellona

AM, B, F, R 1~4

Bromide Paper

Fujibromide

F 1~5, AM 2~5, R (2, 3)

Contrast Grades of Fuji Paper

1	Soft
2	Normal
3	Contrast
4	Extra Contrast
5	Ultra Contrast

Identification Letters for Fuji Papers

Texture Brilliance	Smooth Glossy	Smooth Semi-Matte	Fine Grained Lustre	Silk Lustre
Single Weight	F	A	—	—
Medium Weight	FM	AM	RM	—
Double Weight	G	B	R	S

Special Purpose Use

Fuji Oscillographic Paper

Fuji Photo-Telegraphic Bromide Paper

Fujiograph Projection Paper

Fujiograph Photo-Copying Paper

Fujiograph Reflex-Copying Paper

Fuji Aerographic Paper

Fujibromide TV (for TV use)

Neocopy N, P, PFN (Copying paper for office work)

CHEMICALS

Monol

Fuji Hydroquinone

Fuji Sodium Sulphite, Anhydrous

Fuji Sodium Carbonate, Monohydrate

Nabox (Balanced Alkali)

Fuji Potassium Bromide

Prepared Chemicals

Microfine (Extra fine grain developer for film)

and dry plate.)

Microfine Replenisher

Pandol (Fine grain developer for high speed.)

Minidol (Fine grain developer for high speed film development.)

Minidol Replenisher

Rendol (Developer for X-ray film)

Rendol Replenisher

Copinal (Developer for Fuji)

Fuji Dental X-ray Film Processor

Aerdol (The developer for dental film)

Lithodol (The developer for lithography)

Gradol (The developer for graphic arts)

Korectol (Developer for photographic plates)

Papitol (Photofinisher's developer for photographic paper.)

Neocopy Processing Chemicals

Fujifix (Acid hardening fixer for dry plates and papers.)

Super Fujifix (High speed fixer)

Fuji Super Renfix (High speed acid fixer for Fuji X-ray films)

Fuji Neo Hypo (Acid fixing agent)

Drivel (Wetting agent for drying films, papers, and plates.)

Neo Film Cement

Neo Film Lacquer (Remedy for scratch on the negative.)

Neoflat

OPTICAL GOODS

LENS

General Photography Use

Fujinar

f/4.5 180 mm, f/4.5 210 mm, f/4.5 250 mm,

f/4.5 300 mm

Fujinar-W

f/6.3 150 mm

Fujinon (for 35 mm Camera)

f/1.2 50 mm, f/2 35 mm, f/2 100 mm

Enlarging Use

Fujinar-E

f/4.5 50 mm, f/4.5 75 mm, f/4.5 90 mm,

f/4.5 105 mm

35 mm Motion Picture Use

Cine-Fujinon

CAMERA

Fujica 35-ML f/1.9

Fujica 35-ML f/2.8

with built-in exposure value system

Lens: Fujinon f/1.9 45 mm (6 element)

Fujinon f/2.8 45 mm (5 element)

Shutter: B, 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60,
1/125, 1/250, 1/500 sec.

Picture Size: 24 mm × 36 mm use J135 film

Fujica 35-SE f/1.9

Fujica 35-SE f/2.8

with built-in coupled light meter

Lens: Fujinon f/1.9, 45 mm (6 element)

Fujinon f/2.8, 45 mm (5 element)

Shutter: B, 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60,
1/125, 1/250, 1/500 sec.

Picture size: 24 mm×36 mm use J135 film

Fujica 35-EE

with built-in automatic diaphragm control

Lens: Fujinon f/1.9 45 mm (6 element)

Shutter: B, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60,
1/125, 1/250, 1/500, 1/1,000 sec.

Picture size: 24 mm×36 mm use J135 film

Fujipet

Lens: Single meniscus f/11 70 mm Fixed Focus

Shutter: B & 1, built-in flash synchro

Picture size: 60 mm×60 mm use J120 film

Fujipet-EE

with built-in automatic diaphragm control

Lens: Single meniscus f/11 70 mm fixed focus

Shutter: Ever set type 1/50 sec. built-in
flash synchro

Picture size: 60 mm×60 mm use J120 film

Fuji Pet-35

Lens: Fujinar-K f/3.5 45 mm (3 element)

Shutter: B, 1/25, 1/50, 1/100, 1/200 sec.

Picture size: 24 mm×36 mm use J135 film

Fuji Pet 35-EE

with built-in automatic diaphragm control

Lens: Fujinar-K f/3.5 38 mm

Shutter: Ever set type 1/50 sec.

Picture size: 24 mm × 36 mm use J135 film

Fujica 8T3

with Electronic Scene Analyser

Lens: 3 lens turret with Fujinon f/1.9 conversion lens; 13 mm standard, 6.5 mm wide angle and 26 mm telephoto lenses

Camera Speed: 12, 16, 24, 32 fps and single frame

Drive: Spring drive

Film used: Spool loading, double 8 mm 25 ft.

Fujica 8T3-EE

with built-in automatic diaphragm control

Lens: 3 lens turret with Fujinon f/1.9 conversion lens; 13 mm standard, 6.5 mm wide angle and 26 mm telephoto lenses

Camera Speed: 16, 24, 32 fps and single frame.

Drive: Spring drive

Film used: Spool loading, double 8 mm 25 ft.

Fujica 8 Zoom EE

with built-in automatic diaphragm control

Lens: Fujinon f/1.8 12~32 mm zoom lens

Camera speed: 16, 24, 32 fps and single frame

Drive: Spring drive

Film used: Spool loading, double 8 mm 25 ft.

Fuji Minicopy Camera D-1

35 mm Microfilming Camera

Fuji Minicopy Reader

for 35 mm Microfilm

ENLARGER

Fuji Enlarger B

Negative used: All sizes less than $2\frac{1}{2}" \times 3\frac{1}{2}"$

Lens used: Fujinar-E

Fuji Enlarger 35

Negative used: 24 mm $\times$ 36 mm

Lens used: Fujinar-E f/4.5 50 mm

Fuji Automatic Enlarger A II

with built-in automatic focusing device

Negative used: all sizes less than $2\frac{1}{2}" \times 2\frac{1}{2}"$

Lens used: Fujinar-E f/4.5 50 mm, f/4.5 75 mm

PROJECTOR

Fujica Attaché Projector (Slide Projector)

with collapsible daylight screen

Lens: P-Acular f/3 50mm • 35mm slide ($2" \times 2"$)

with simple carrier, film strip carrier

Fujica Slide Projector (Birdie III)

Lens: P-Acular M f/3 100mm • 35mm slide ($2" \times 2"$), with automatic changer

FD-105 Developer for Ginrei, To-Ne, Bellona, Fujibromide, Photo-telegraphic Bromide, Fujigraph Paper, Oscillographic film, Oscillographic Paper, Photo-telegraphic film

Warm Water (approx. 50°C).....	500 cc
Fuji Monol (Monomethyl Paramidophenol Sulphate)	2 grams
Fuji Sodium Sulphite, Anhydrous	30 grams
Fuji Hydroquinone	7 grams
Fuji Sodium Carbonate, Monohydrate..	53 grams
Fuji Potassium Bromide.....	1.5 grams
Add water to make	1,000 cc

When using add 1 part of water to 1 part of stock solution.

Developing time at 20°C for the following are
Fuji Photo-Telegraphic Bromide Paper

90 seconds~2 minutes

Fuji Bromide Paper for Photo

Composing Machine Use 40~60 seconds

FD-9 Developer for Ginrei

Warm Water (approx. 50°C)	500 cc
Fuji Monol (Monomethyl paramidophenol Sulphate)	1.5 grams
Fuji Sodium Sulphite, Anhydrous	22 grams
Fuji Hydroquinone	6 grams
Fuji Sodium Carbonate, Monohydrate..	18 grams
Fuji Potassium Bromide.....	1.5 grams

Add water to make 1,000 cc
When using add 1 part of water to 1 part of
stock solution.
Develop for 1.5~2 minutes at 20°C.

FD-111 Developer for X-ray films, Autoradiographic plate, Oscillo- graphic Paper

Warm Water (approx. 50°C) 750 cc
Fuji Monol (Monomethyl Paramidophenol
Sulphate) 4 grams
Fuji Sodium Sulphite, Anhydrous 60 grams
Fuji Hydroquinone 10 grams
Fuji Sodium Carbonate, Monohydrate... 53 grams
Fuji Potassium Bromide..... 2.5 gram
Add water to make 1,000 cc
Dissolve chemicals in order given.
Develop in stock solution at 20°C for 4 to
6 minutes.

Developing capacity is about a dozen of 24X
30 cm films.

FD-131 Developer for Fuji Micro Film, Process plate

Warm Water (approx. 50°C)..... 750 cc
Fuji Monol (Monomethyl Paramidophenol
Sulphate) 1 gram
Fuji Sodium Sulphite, Anhydrous 75 grams
Fuji Hydroquinone 9 grams
Fuji Sodium Carbonate, Monohydrate... 29 grams

Fuji Potassium bromide..... 6 grams
 Add water to make 1,000 cc
 Develop in this solution (without further dilution)
 for 4~6 minutes at 20°C.

FD-185 Developer for Fujilith film

Warm Water (approx. 50°C)..... 500 cc
 Fuji Sodium Sulphite, Anhydrous 35 grams
 Paraformaldehyde 9 grams
 Sodium Bisulphite 2.5 grams
 Boric Acid 8 grams
 Fuji Hydroquinone 25 grams
 Fuji Potassium Bromide..... 2 grams
 Add water to make.....1,000 cc

This solution is used without further dilution.
 The recommended developing time is 2 minutes
 15 seconds to 2 minutes 45 seconds at 20°C.

FS-1 Stop bath

Before fixing, rinse the film in Stop Bath FS-1
 for 30~60 seconds at 18°~21°C.

Water 1,000 cc
 Acetic Acid, Glacial 15 cc

FF-H₃ Fixer for Photographic papers

Solution A

Warm Water (approx. 50°C)..... 600 cc
 Hypo 250 grams

Solution B

Warm Water (approx. 50°C).....	200 cc
Fuji Sodium Sulphite, Anhydrous ...	15 grams
Acetic Acid, Glacial	12 cc
Fuji Nabox (Balanced Alkali)	12 grams
Potassium Alum.....	5 grams

Dissolve Solutions A and B in separate container. After cooling down to normal temperature stir Solution A while gradually adding Solution B to it to make a total of 1,000 cc. Fixation time of 5~10 minutes at 18°~21°C is considered appropriate.

FF-H₄ Acid hardening fixer for films and plates

Solution A

Warm Water (approx. 50°C)	600 cc
Hypo	300 grams

Solution B

Warm Water (approx. 50°C)	200 cc
Fuji Sodium Sulphite, Anhydrous.....	15 grams
Acetic Acid, Glacial	12 cc
Fuji Nabox (Balanced Alkali)	12 grams
Potassium Alum	20 grams

After preparing the solutions A and B separately, cool them to normal temperature. Then while stirring the solution A, add to it the solution B slowly to make a total of 1,000 cc. Fix the film in this bath for 10~20 minutes at 18°~21°C.

III. PHOTOGRAPHIC REFERENCES

Comparison of Various Exposure Index Systems

JIS	Weston	ASA	Scheiner	DIN	H & D
10	8	10	22°	12/10	600
12	10	12	23°	13/10	750
16	12	16	24°	14/10	960
20	16	20	25°	15/10	1,200
24	20	24	26°	16/10	1,500
32	24	32	27°	17/10	1,900
40	32	40	28°	18/10	2,400
50	40	50	29°	19/10	3,000
64	50	64	30°	20/10	3,800
80	64	80	31°	21/10	4,800
100	80	100	32°	22/10	6,000
125	100	125	33°	23/10	7,600
160	125	160	34°	24/10	9,600
200	160	200	35°	25/10	12,000
250	200	250	36°	26/10	15,000
320	250	320	37°	27/10	19,000
400	320	400	38°	28/10	24,000

Dimensions of Sensitized Materials

Inches	Actual Size (cm)	Actual Size (cm)
	Plate	Photo-paper
20×24	50.5×60	50.8×61
18×22	45.5×55.7	45.7×56
14×17	35.4×43	35.6×43.2
11×14	27.9×35.4	28 ×35.6
10×12	25.2×30.3	25.4×30.5
8×10	20.1×25.2	20.3×25.4
6½×8½	16.4×21.4	16.5×21.6
5×7	12.9×17.9	13 ×18
4¾×6½	11.9×16.4	12 ×16.5
4×5	10.1×12.6	10.2×12.7
3¼×4¼	8.2×10.7	8.3×10.8
2½×3½	6.3× 8.9	—
3¼×3¼	8.2× 8.2	—

Conversion Table of Temperature

C	F	C	F	C	F	C	F
0	32.0	26	78.8	52	125.6	78	172.4
1	33.8	27	80.6	53	127.4	79	174.2
2	35.6	28	82.4	54	129.2	80	176.0
3	37.4	29	84.2	55	131.0	81	177.8
4	39.2	30	86.0	56	132.8	82	179.6
5	41.0	31	87.8	57	134.6	83	181.4
6	42.8	32	89.6	58	136.4	84	183.2
7	44.6	33	91.4	59	138.2	85	185.0
8	46.4	34	92.3	60	140.0	86	186.8
9	48.2	35	95.0	61	141.8	87	188.6
10	50.0	36	96.8	62	143.6	88	190.4
11	51.8	37	98.6	63	145.4	89	192.2
12	53.6	38	100.4	64	147.2	90	194.0
13	55.4	39	102.2	65	149.0	91	195.8
14	57.2	40	104.0	66	150.8	92	197.6
15	59.0	41	105.8	67	152.6	93	199.4
16	60.8	42	107.6	68	154.4	94	201.2
17	62.6	43	109.4	69	156.2	95	203.0
18	64.4	44	111.2	70	158.0	96	204.8
19	66.2	45	113.0	71	159.8	97	206.6
20	68.0	46	114.8	72	161.6	98	208.4
21	69.8	47	116.6	73	163.4	99	210.2
22	71.6	48	118.4	74	165.2	100	212.0
23	73.4	49	120.2	75	167.0		
24	75.2	50	122.0	76	168.8		
25	77.0	51	123.8	77	170.6		

$$(^{\circ}\text{C, Centigrade}) = \frac{5}{9} \times (^{\circ}\text{F} - 32)$$

$$(^{\circ}\text{F, Fahrenheit}) = \frac{9}{5} \times ^{\circ}\text{C} + 32$$

Conversion Table of Weights and Measures

Inch

Length

(yd)	(ft)	(in)	(mm)	(m)
1.0	3.0	36.0	914.4	0.9144
0.333	1.0	12.0	304.8	0.3048
0.0277	0.0833	1.0	25.4	0.0254
0.00109	0.00326	0.03937	1.0	0.001
1.0936	3.2808	39.37	1000.0	1.0

Weight

(lb)	(oz)	(grain)	(g)	(kg)
1.0	16.0	7000.0	453.6	0.4536
0.0625	1.0	437.5	28.35	0.02835
—	—	1.0	0.0648	—
—	0.03527	15.45	1.0	0.001
2.205	35.27	15432.0	1000.0	1.0

Quantity

(gal)	(qt)	(fl. oz)	(fl. dr)	(cc)	(liter)
1.0	4.0	128.0	1024.0	3785.0	3.785
0.25	1.0	32.0	256.0	946.3	0.9463
—	—	1.0	8.0	29.57	0.02957
0.000975	0.0039	0.125	1.0	3.697	0.003697
—	—	—	(60 mins)	—	—
—	—	0.03381	0.2705	1.0	0.001
0.2642	1.057	33.81	270.5	1000.0	1.0

Filter Factor

D=Daylight T=Tungsten

	FUJI		Wratten	Neopan S		Neopan SS		Neopan SSS		Neopan F		Fuji Micro	Fujilith
	Gelatin	Solid		D	T	D	T	D	T	D	T		
Very light yellow	# 1	SY1	K1	1.5	—	1.5	—	1.5	—	1.5	—	—	—
Yellow	# 3	SY3	K2	2	1.5	2	1.5	2	1.5	2	1.5	1.5	1.5
Deep yellow	# 6	SO2	G	3	2	3	2	3	2	3	2	2	3
Light green	# 4	—	X1	3.5	3	4	3	3.5	3	3.5	3	—	—
Red	# 7	SR2	25A	8	5	6	3	6	4	7	4	8	—
Deep green	# 17	—	B2	6	7	9	8	—	—	—	—	—	—
Deep blue	# 18	—	C5	10	10	10	12	—	—	—	—	—	10

Black & White and Daylight Color Exposure Guide Light Value System Numbers

ASA film speed	Bright Sunlight	Hazy Sunlight	Bright Overcast	Open Shade on Bright Day
10	11	10	9	8
25	12½	11½	10½	9½
32	13	12	11	10
50	13½	12½	11½	10½
64	14	13	12	11
80	14	13	12	11
100	14½	13½	12½	11½
200	15½	14½	13½	12½

For beach and snow scenes and distant landscapes without shadows or without dark objects in the foreground, increase LVS number by ½ (for example, 14 to 14½). For dark subjects, decrease LVS number by ½ (for example, 13½ to 13).

Shutter Speeds to Stop Action

Guide Light Value System Numbers



Subject at 25 feet	To or away from camera	45° to camera	Across View
Walking	1/30	1/60	1/125
Children at play, swimming, skating street activity	1/60	1/125	1/250
Vehicles at 20 m. p.h., football, track	1/125	1/250	1/500
Vehicles at 40 m. p.h., tennis, skiing	1/250	1/500	1/500 and pan
Horse racing, air-planes	1/500	1/500 and pan	1/500 and pan

When subject is at 50 feet, twice the exposure will stop action (for example, 1/125 instead of 1/250).

Fujinon f/1.9 45 mm
Fujinon f/2.8 45 mm

Depth of Field Table (in feet)

	2.5'	3'	4'	5'	6'	8'	10'	15'	20'	30'	60'	∞
1.9	2.42 ~2.58	2.89 ~3.12	3.80 ~4.22	4.69 ~5.36	5.55 ~6.53	7.21 ~8.99	9.78 ~11.61	12.40 ~19.00	15.62 ~27.85	21.08 ~52.15	32.44 ~408.92	70.14 ~∞
2.8	2.37 ~2.64	2.82 ~3.20	3.69 ~4.37	4.52 ~5.59	5.33 ~6.87	6.85 ~9.62	8.26 ~12.67	11.40 ~21.93	14.07 ~34.57	18.80 ~81.61	26.50 ~∞	47.46 ~∞
4	2.31 ~2.70	2.73 ~3.30	3.57 ~4.55	4.35 ~5.89	5.08 ~7.32	6.45 ~10.54	7.69 ~14.31	10.33 ~27.35	12.48 ~50.26	15.76 ~309.63	21.38 ~∞	33.22 ~∞
5.6	2.26 ~2.79	2.66 ~3.43	3.43 ~4.81	4.13 ~6.33	4.79 ~8.03	5.98 ~12.07	7.04 ~17.28	9.19 ~40.78	10.85 ~127.31	13.25 ~∞	17.00 ~∞	23.73 ~∞
6.3	2.24 ~2.84	2.63 ~3.50	3.36 ~4.94	4.04 ~6.55	4.67 ~8.39	5.80 ~12.89	6.78 ~19.02	8.77 ~51.94	10.27 ~386.60	12.38 ~∞	15.61 ~∞	21.09 ~∞
8	2.17 ~2.94	2.54 ~3.66	3.23 ~5.27	3.84 ~7.15	4.41 ~9.39	5.40 ~15.43	6.24 ~25.13	7.88 ~154.81	9.07 ~∞	10.69 ~∞	13.01 ~∞	16.61 ~∞
11	2.07 ~3.15	2.40 ~3.99	3.00 ~5.98	3.54 ~8.53	4.01 ~11.92	4.81 ~23.69	5.47 ~58.09	6.61 ~∞	7.53 ~∞	3.61 ~∞	10.06 ~∞	12.08 ~∞
16	1.92 ~3.58	2.20 ~4.70	2.70 ~7.72	3.12 ~12.57	3.48 ~21.62	4.07 ~336.3	4.54 ~∞	5.35 ~∞	5.87 ~∞	6.50 ~∞	7.29 ~∞	8.30 ~∞
22	1.77 ~4.27	2.00 ~5.96	2.41 ~11.84	2.74 ~29.05	3.01 ~912.8	3.44 ~∞	3.77 ~∞	4.31 ~∞	4.64 ~∞	5.03 ~∞	5.49 ~∞	6.04 ~∞

Circle of Confusion 0.05 mm

Running Time of 8 mm Motion Picture Films

16 frames per second

sec. \ min.		0	1	2	3	4	5	6	7	8	9	10
feet												
0			12	24	36	48	60	72	84	96	108	120
5	1		13	25	37	49	61	73	85	97	109	121
10	2		14	26	38	50	62	74	86	98	110	122
15	3		15	27	39	51	63	75	87	99	111	123
20	4		16	28	40	52	64	76	88	100	112	124
25	5		17	29	41	53	65	77	89	101	113	125
30	6		18	30	42	54	66	78	90	102	114	126
35	7		19	31	43	55	67	79	91	103	115	127
40	8		20	32	44	56	68	80	92	104	116	128
45	9		21	33	45	57	69	81	93	105	117	129
50	10		22	34	46	58	70	82	94	106	118	130
55	11		23	35	47	59	71	83	95	107	119	131
sec. \ min.		11	12	13	14	15	16	17	18	19	20	
feet												
0		132	144	156	168	180	192	204	216	228		240
5	1	133	145	157	169	181	193	205	217	229		241
10	2	134	146	158	170	182	194	206	218	230		242
15	3	135	147	159	171	183	195	207	219	231		243
20	4	136	148	160	172	184	196	208	220	232		244
25	5	137	149	161	173	185	197	209	221	233		245
30	6	138	150	162	174	186	198	210	222	234		246
35	7	139	151	163	175	187	199	211	223	235		247
40	8	140	152	164	176	188	200	212	224	236		248
45	9	141	153	165	177	189	201	213	225	237		249
50	10	142	154	166	178	190	202	214	226	238		250
55	11	143	155	167	179	191	203	215	227	239		251

Running Time of 16 mm Motion Picture Films

24 frames per second (Sound)

sec.	min.	0	1	2	3	4	5	6	7	8	9	10
feet												
0			36	72	108	144	180	216	252	288	324	360
5	3	39	75	111	147	183	219	255	291	327	363	363
10	6	42	78	114	150	186	222	258	294	330	366	366
15	9	45	81	117	153	189	225	261	297	333	369	369
20	12	48	84	120	156	192	228	264	300	336	372	372
25	15	51	87	123	159	195	231	267	303	339	375	375
30	18	54	90	126	162	198	234	270	306	342	378	378
35	21	57	93	129	165	201	237	273	309	345	381	381
40	24	60	96	132	168	204	240	276	312	348	384	384
45	27	63	99	135	171	207	243	279	315	351	387	387
50	30	66	102	138	174	210	246	282	318	354	390	390
55	33	69	105	141	177	213	249	285	321	357	393	393
feet												
sec.	min.	11	12	13	14	15	16	17	18	19	20	
0												20
5	3	396	432	468	504	540	576	612	648	684	720	720
10	6	399	435	471	507	543	579	615	651	687	723	723
15	9	402	438	474	510	546	582	618	654	690	726	726
20	12	405	441	477	513	549	585	621	657	693	729	729
25	15	408	444	480	516	552	588	624	660	696	732	732
30	18	411	447	483	519	555	591	627	663	699	735	735
35	21	414	450	486	522	558	594	630	666	702	738	738
40	24	417	453	489	525	561	597	633	669	705	741	741
45	27	420	456	492	528	564	600	636	672	708	744	744
50	30	423	459	495	531	567	603	639	675	711	747	747
55	33	426				570	606	642	678	714	750	750
		429				573	609	645	681	717	753	753

Running Time of 16 mm Motion Picture Films

16 frames per second (Silent)

sec.	min.	0	1	2	3	4	5	6	7	8	9	10
feet												
0	5	24	48	72	96	120	144	168	192	216	240	240
10	5	26	50	74	98	122	146	170	194	218	242	244
15	5	28	52	76	100	124	148	172	196	220	244	246
20	5	30	54	78	102	126	150	174	198	222	246	248
25	5	32	56	80	104	128	152	176	200	224	248	250
30	5	34	58	82	106	130	154	178	202	226	250	252
35	5	36	60	84	108	132	156	180	204	228	252	254
40	5	38	62	86	110	134	158	182	206	230	254	256
45	5	40	64	88	112	136	160	184	208	232	256	258
50	5	42	66	90	114	138	162	186	210	234	258	260
55	5	44	68	92	116	140	164	188	212	236	260	262
55	5	46	70	94	118	142	166	190	214	238	262	262
sec.	min.	11	12	13	14	15	16	17	18	19	20	
feet												
0	5	264	288	312	336	360	384	408	432	456	480	480
10	5	266	290	314	338	362	386	410	434	458	482	482
15	5	268	292	316	340	364	388	412	436	460	484	484
20	5	270	294	318	342	366	390	414	438	462	486	486
25	5	272	296	320	344	368	392	416	440	464	488	488
30	5	274	298	322	346	370	394	418	442	466	490	490
35	5	276	300	324	348	372	396	420	444	468	492	492
40	5	278	302	326	350	374	398	422	446	470	494	494
45	5	280	304	328	352	376	400	424	448	472	496	496
50	5	282	306	330	354	378	402	426	450	474	498	498
55	5	284	308	332	356	380	404	428	452	476	500	500
55	5	286	310	334	358	382	406	430	454	478	502	502

Projection Distance and Screen Size for 16 mm Projection

Lens focal length Distance From Screen		5 1/2 (inch)		1		3 1/2		2		2 1/2		3		3 1/2		4	
Screen Size																	
Feet		Width in.	Height in.	Width in.	Height in.	Width in.	Height in.	Width in.	Height in.	Width in.	Height in.	Width in.	Height in.	Width in.	Height in.	Width in.	Height in.
3		1	6 1/2	2 1/2	6 1/2	7	9	7	9	7	9	7	9	7	9	7	9
4		2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	10	6 1/2	10	6 1/2	10	6 1/2	10	6 1/2	10	6 1/2
5		3	6 1/2	10 1/2	6 1/2	4 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
6		4	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
7		5	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
8		6	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
10		8	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
12		10	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
15		12	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
18		15	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
20		18	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
25		20	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
30		25	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
35		30	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
40		35	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
45		40	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
50		45	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
60		50	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
75		60	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
100		75	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
125		100	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
150		125	6 1/2	10 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2

Projection Distance and Screen Size for 8 mm Projection

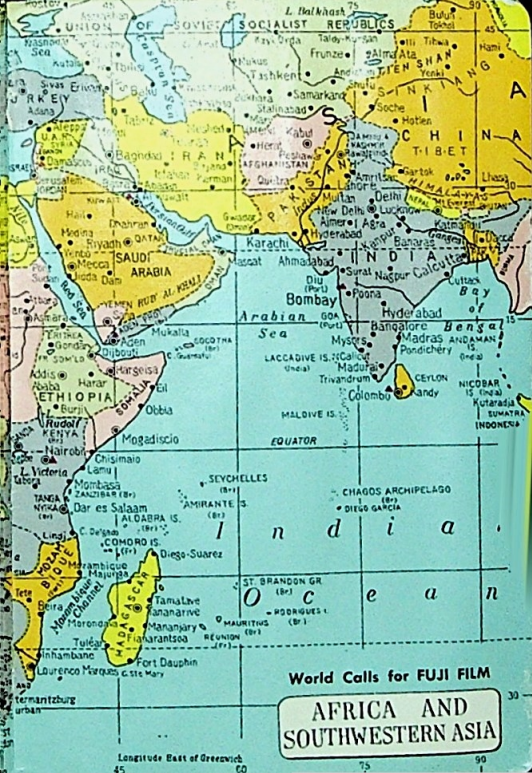
Lens Focal Length Distance from Screen		$\frac{1}{2}$ (inch)		$\frac{3}{4}$		1		$1\frac{1}{2}$	
Screen Size									
feet	Width ft. in.	Height ft. in.	Width ft. in.	Height ft. in.	Width ft. in.	Height ft. in.	Width ft. in.	Height ft. in.	Width ft. in.
3	1 0	9	1 0	9	1 0	9	1 0	9	1 0
4	1 5	1 0	1 1	10	1 1	10	1 1	10	1 1
5	2 0	1 1	1 2	11	1 2	11	1 2	11	1 2
6	2 5	1 2	1 3	12	1 3	12	1 3	12	1 3
8	3 0	1 4	1 4	14	1 4	14	1 4	14	1 4
10	3 5	1 6	1 5	15	1 5	15	1 5	15	1 5
12	4 0	1 8	1 6	16	1 6	16	1 6	16	1 6
15	5 0	2 2	2 0	20	2 0	20	2 0	20	2 0
18	6 0	2 6	2 4	24	2 4	24	2 4	24	2 4
20	6 5	2 8	2 5	25	2 5	25	2 5	25	2 5
25	8 0	3 4	3 0	30	3 0	30	3 0	30	3 0
30	9 0	4 0	3 6	36	3 6	36	3 6	36	3 6
35	10 0	4 6	4 0	40	4 0	40	4 0	40	4 0
40	11 0	5 2	4 6	46	4 6	46	4 6	46	4 6
45	12 0	5 8	5 0	50	5 0	50	5 0	50	5 0
50	13 0	6 4	5 6	56	5 6	56	5 6	56	5 6
75	18 0	8 6	7 6	76	7 6	76	7 6	76	7 6
100	24 0	11 2	10 0	100	10 0	100	10 0	100	10 0

THE FAR EAST

World Maps for FULL FILM







World Calls for FUJI FILM

AFRICA AND
SOUTHWESTERN ASIA

Longitude East of Greenwich

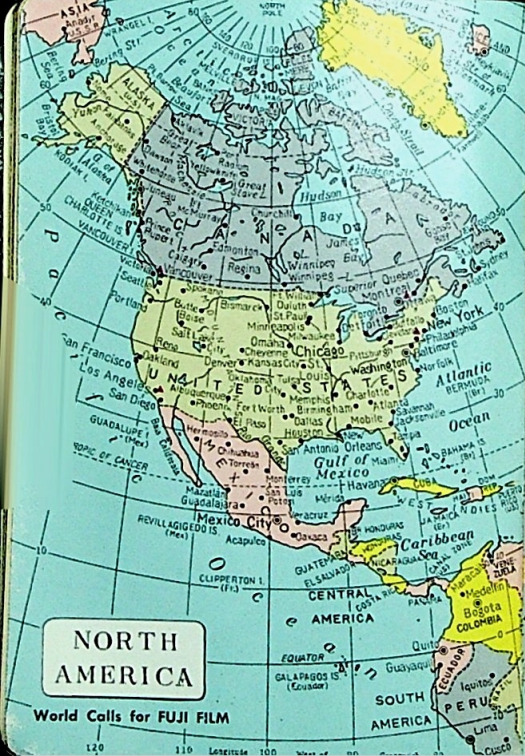
EUROPE

World Calls for FUJI FILM



Longitude West of Greenwich 0 Longitude East of Greenwich





**NORTH
AMERICA**

World Calls for FUJI FILM



World Calls for FUJI FILM

CENTRAL AMERICA
MEXICO AND
THE WEST INDIES



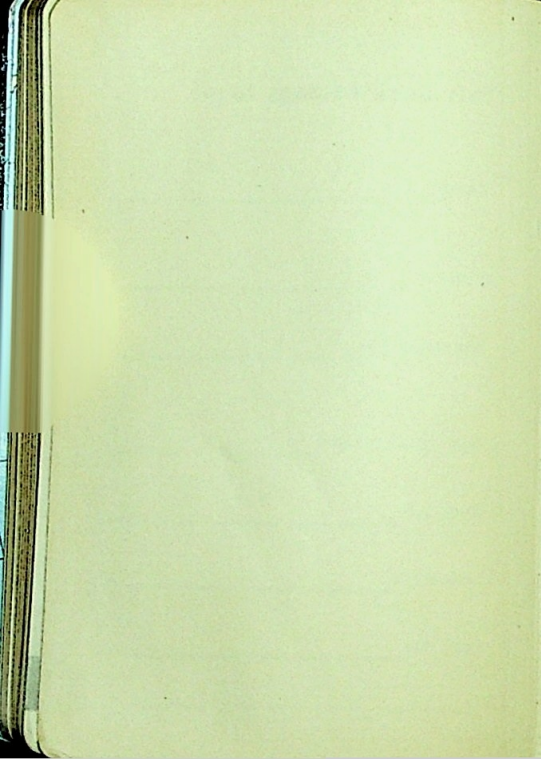
YEARLY

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